

CLAIMS

1. A MP3 player, comprising:

a memory unit, to store MP3 files;

5 a DSP processor, to decode the MP3 files under a playing operation, producing an audio signal;

an earphone, responsive to said audio signal to convert said audio signal into sound;

a microphone, responsive to a voice to provide an electrical signal transmitted to said DSP processor; and

10 a key inputting unit, to transmit a command requested by a user to said DSP processor; characterized in that:

said MP3 player further comprises a wireless transceiver connected to an antenna and said DSP processor, said DSP processor operates said wireless transceiver to allow two-way audio communication to a mobile phone, when
15 MP3 file is played under the playing operation of said DSP processor, said DSP processor automatically pauses the playing operation and establishes a conversation with the mobile phone through the earphone and microphone under a suspending operation if a ring indication from the mobile phone is transmitted to said DSP processor via the wireless transceiver.

20 2. The MP3 player of claim 1, further comprises a display unit to connect with said DSP processor, the display unit shows the message of said ring indication.

3. The MP3 player of claim 3, wherein the said display unit shows the message of said playing operation.

4. The MP3 player of claim 1, wherein the said memory unit is a non-volatile
25 memory device.

5. The MP3 player of claim 4, wherein said DSP processor executes a program stored in the non-volatile memory device to practice the playing operation.

6. The MP3 player of claim 1, further comprises a data interface unit to connect with the DSP processor, allowing the DSP processor to receive MP3 files through said data interface.
7. The MP3 player of claim 6, wherein said data interface unit is a USB port.
- 5 8. The MP3 player of claim 1, wherein the said DSP processor executes a program stored in the memory unit to practice the suspending operation.
9. The MP3 player of claim 8, wherein said DSP processor, after receiving the ring indication from the mobile phone via the wireless transceiver, practices the suspending operation according to the command transmitted by the key inputting unit.
- 10 10. The MP3 player of claim 1, wherein said DSP processor determines whether the content of the conversation is recorded in the memory unit according to the command transmitted from the key inputting unit.
11. The MP3 player of claim 1, wherein said DSP processor generates a ringing signal transmitted to the earphone after receiving a ring indication from the mobile phone via the wireless transceiver.
- 15 12. The MP3 player of claim 1, wherein said DSP processor determines whether the playing operation is paused according to the command transmitted by the key inputting unit.
- 20 13. The MP3 player of claim 1, wherein said DSP processor determines whether a conversation with the mobile phone is established according to the command transmitted from the key inputting unit.
14. The MP3 player of claim 1, wherein said wireless transceiver is a bluetooth transceiver, and said mobile phone is a bluetooth handset.
- 25 15. A MP3 player, comprising:
 - a memory unit, to store MP3 files;

a DSP processor, to decode the MP3 files under a playing operation, producing an audio signal;

an audio outputting interface, to transmit said audio signal to an earphone;

an audio collecting interface, to receive a voice signal from a microphone,
5 and transmit the same to said DSP processor; and

a key inputting unit, to transmit a command requested by a user to the DSP processor; characterized in that:

said MP3 player further comprises a wireless transceiver connected to an antenna and said DSP processor, said DSP processor operates said wireless
10 transceiver to allow two-way audio communication to a mobile phone, when MP3 file is played under the playing operation of said DSP processor, said DSP processor automatically pauses the playing operation and transmits a sound signal from the mobile phone to the earphone via said audio outputting interface and the voice signal to the mobile phone if a ring indication from the mobile
15 phone is transmitted to said DSP processor via the wireless transceiver.

16. The MP3 player of claim 15, further comprises a display unit to connect with said DSP processor, the display unit shows the message of said ring indication.

17. The MP3 player of claim 16, wherein the said display unit shows the message of said playing operation.

20 18. The MP3 player of claim 15, wherein the said memory unit is a non-volatile memory device.

19. The MP3 player of claim 18, wherein said DSP processor executes a program stored in the non-volatile memory device to practice the playing operation.

20. The MP3 player of claim 15, further comprises a data interface unit to connect
25 with the DSP processor, allowing the DSP processor to receive MP3 files through said data interface.

21. The MP3 player of claim 20, wherein said data interface unit is a USB port.

22. The MP3 player of claim 15, wherein said DSP processor, according to the command transmitted by the key inputting unit, determines whether the audio signal from the mobile phone and the voice signal transmitted to the mobile phone are recorded in the memory unit.
- 5 23. The MP3 player of claim 15, wherein said DSP processor generates a ringing signal transmitted to the earphone after receiving a ring indication from the mobile phone via the wireless transceiver.
24. The MP3 player of claim 15, wherein said DSP processor determines whether the playing operation is paused according to the command transmitted by the key
10 inputting unit.
25. The MP3 player of claim 15, wherein said DSP processor determines whether a conversation with the mobile phone is established according to the command transmitted from the key inputting unit.
26. The MP3 player of claim 15, wherein said wireless transceiver is a bluetooth
15 transceiver, and said mobile phone is a bluetooth handset.
27. An audio player, comprising:
- a memory unit, to store audio compressed files;
 - a DSP processor, to decompress audio compressed files under a playing operation, producing an audio signal;
 - 20 an audio outputting unit, responsive to said audio signal to convert said audio signal into sound;
 - an audio collecting unit, responsive to a voice to provide an electrical signal transmitted to said DSP processor; and
 - a key inputting unit, to transmit a command requested by a user to said DSP
25 processor; characterized in that:
- said audio player further comprises a wireless transceiver connected to the antenna and said DSP processor, said DSP processor operates said wireless

transceiver to allow two-way audio communication to a mobile phone; when said audio compressed file is played under the playing operation of said DSP processor, said DSP processor automatically pauses the playing operation and establishes a conversation with the mobile phone through the audio outputting unit and audio collecting unit under a suspending operation if a ring indication from the mobile phone is transmitted to said DSP processor via the wireless transceiver.

- 28. The audio player of claim 27 is a MP3 player.
- 29. The audio player of claim 27, further comprises a display unit to connect with said DSP processor, the display unit shows the message of said ring indication.
- 30. The audio player of claim 29, wherein the said display unit shows the message of said playing operation.
- 31. The audio player of claim 27, wherein the said memory unit is a non-volatile memory device.
- 32. The audio player of claim 31, wherein said DSP processor executes a program stored in the non-volatile memory device to practice the playing operation.
- 33. The audio player of claim 27, further comprises a data interface unit to connect with the DSP processor, allowing the DSP processor to receive audio compressed files through the data interface.
- 34. The audio player of claim 33, wherein said audio compressed files are MP3 files.
- 35. The audio player of claim 33, wherein said data interface unit is a USB port.
- 36. The audio player of claim 27, wherein said DSP processor practices the suspending operation according to execution of a program stored in the memory unit.
- 37. The audio player of claim 27, wherein said DSP processor, according to the command transmitted by the key inputting unit, determines whether a conversation with the mobile phone is established after receiving the ring

indication from the mobile phone via the wireless transceiver.

38. The audio player of claim 27, wherein said DSP processor determines whether the content of the conversation is recorded in the memory unit according to the command transmitted by the key inputting unit.

5 39. The audio player of claim 27, wherein said DSP processor generates a ringing signal transmitted to the audio outputting unit after receiving the ring indication from the mobile phone via the wireless transceiver.

40. The audio player of claim 39, wherein said DSP processor determines whether the playing operation is paused according to the command transmitted by the
10 key inputting unit.

41. The MP3 player of claim 39, wherein said DSP processor determines whether a conversation with a mobile phone is established according to the command transmitted by the key inputting unit.

42. The MP3 player of claim 27, wherein said wireless transceiver is a bluetooth transceiver, and said mobile phone is a bluetooth handset.
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43. A method for an audio player having an earphone and a microphone to allow two-way audio communication to a mobile phone, the method comprising:

establishing a wireless connectivity with a wireless transceiver installed in the audio player between the audio player and the mobile phone ;

20 pausing a playing operation of the audio player if a ring indication from the mobile phone via said wireless connection is transmitted to the audio player; and

transmitting a sound signal from the mobile phone to the earphone and a voice signal from the microphone to the mobile phone through the wireless transceiver.

25 44. The method of claim 43, wherein said wireless transceiver is a bluetooth transceiver, and said mobile phone is a bluetooth handset .

45. The method of claim 43, further comprises: the audio player generates a ringing signal and transmits the ringing signal to the earphone after receiving the ring indication.
46. The method of claim 43, further comprises: determining whether the playing operation is paused according to a command requested by a user.
47. The method of claim 43, further comprises: the audio player plays MP3 file undersaid playing operation.
48. The method of claim 43 further comprises: determining whether the audio signal from the mobile phone and the voice signal from the microphone are recorded according to a command requested by a user.
49. The method of claim 48 further comprises: outputting the record via a data interface unit of the audio player.
50. The method of claim 43, further comprises: displaying the ring indication in a display unit of the audio player.
51. An audio player, comprising:
- an audio playing module, to decode audio compressed files, produce an audio signal transmitted to an earphone, and receive a voice signal from a microphone; and
- an attachment mechanism, to combine a wireless earphone with the audio playing module for accomplishing an electrical connecting interface therebetween;
- wherein said audio playing module operates said wireless earphone via said electrical connecting interface to establish two-way audio communication to a mobile phone, and to enable a conversation with the mobile phone at any time in response to a ring indication received from the mobile phone.
52. The audio player of claim 51, wherein said electrical connecting interface at least comprises: control signals between the wireless earphone and the audio playing

module; a audio signal transmitted from the mobile phone; and a voice signal transmitted to the mobile phone.

53. A method for an audio player having an earphone and a microphone to allow two-way audio communication to a mobile phone, the method comprising:

5 accomplishing an electrical connecting interface between said audio player and a wireless earphone;

 operating said wireless earphone via said electrical connecting interface to establish two-way audio communication to the mobile phone; and

 enabling a conversation with the mobile phone at any time in response to a
10 ring indication received from the mobile phone.

54. The method of claim 53, further comprising:

 providing control signals between the wireless earphone and the audio playing module in said electrical connecting interface;

 a audio signal transmitted from the mobile phone in said electrical
15 connecting interface; and

 a voice signal transmitted to the mobile phone in said electrical connecting interface.

55. A method for establishing two-way audio communication between an audio player with a wireless earphone and a mobile phone, said method comprising the
20 following steps:

 connecting a electrical connecting interface between the wireless earphone and the audio player;

 controlling the wireless earphone to establish a wireless connectivity between the audio player and the mobile phone;

25 transmitting a ring indication signal from the wireless earphone to the audio player via said electrical connecting interface;

 transmitting a response signal from the audio player to the wireless

earphone via said electrical connecting interface; and

enabling a conversation in two-way audio communication between the audio player and the mobile phone.